

REMARKS

Claims 1-23 are pending and rejected in this application. Claims 1, 11 and 16 are amended hereby.

Responsive to the Examiner's rejection of claims 1-4, 8, 9, 11, 12, 16 and 18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,900,178 (Johnsen), Applicant has amended claims 1, 11 and 16 and submits that claims 1-4, 8, 9, 11, 12, 16 and 18 are now in condition for allowance.

Johnsen discloses a device for melting snow or ice (Figs. 1-3) including a control unit 1 and a temperature sensor 4. When the temperature rises and passes a chosen value of -0.4°C temperature sensor 4 measures the surface temperature of the roof surface. If water detector 9 registers water during a period of thirty minutes after connection, main heating cable 11 is connected by control unit 1. The main heating cable remains connected until air temperature 6 registers the air temperature as risen to a chosen value of $+0.4^{\circ}\text{C}$. This is, however, conditioned by the fact snow sensor 7 at intervals registers snow at the roof surface. For this reason, water detector 9 is connected again for a chosen time period of ten minutes every four hours after the first disconnection. If water is registered during the time period, main heating cable 11 shall stay connected. If, however, water is not registered in the course of the ten minute period, the heating cable is switched off even if the air temperature has not reached $+0.4^{\circ}\text{C}$ (column 3, line 50 through column 4, line 19).

In contrast claim 1, as amended, recites in part:

a controller...directing status information about at least one said sensor to at least one said heater element, said status information, in the form of a coded signal, being directed to at least one said heater element regardless of ambient temperature.

(Emphasis added). Applicant submits that such an invention is neither taught, disclosed nor suggested by Johnsen or any of the other cited references, alone or in combination, and includes distinct advantages thereover.

Johnsen discloses a device for melting snow or ice including measuring the surface temperature of the roof and controlling the power to a heating cable based upon the temperature. In contrast, Applicant's invention sends information about the controller or information about sensors connected thereto, in the form of status information, to a heating element. The status information reports information about the condition of the sensor, which allows an operator to determine its functional status. In Johnsen the temperature sensor detects a predetermined temperature, which is utilized to turn on or off the heating element. In Johnsen the temperature sensed is only conveyed if the temperature sensor crosses the chosen value and causes a reaction by the control unit. Johnsen does not send information to the heating element about the temperature sensor at any other time. In contrast Applicant's invention reports the status of the sensor by sending information to the heating element. For example, if the temperature is 70° the controller sends that information, in the form of a coded pulse stream, to the heater element to thereby allow a determination of the accuracy of the sensor. In Johnsen the temperature of the sensor itself must be altered in order to alter the power being supplied to the heating cable. The Examiner has utilized standard paragraph 7.37.09 of MPEP 707.07(f) to indicate that the claimed invention "must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." The focus of the Examiner's argument is that the limitation, which states "said status information being directed to at least one said heater element regardless of ambient temperature." is an intended use and not a limitation of the device. In relying upon this argument the Examiner has referred to *In re Casey*, 152 USPQ 235 and *in re Otto*, 136 USPQ 458. However, in *Casey* the issue was how tape was to

be utilized in a tape dispensing machine and the tape was not a claimed limitation. Further, in *Otto* the manufactured item for a hair curler indicated how the hair would be placed upon the curler, the hair not being a claimed limitation of the invention. This is in contrast to Applicant's invention in which the device performs a claimed function and does not indicate that it is merely capable of doing the claimed function. As such, the Examiner should give patentability weight to the limitation, which is a necessary element of the claimed invention. Further, Applicant has amended claim 1 to include a definition of the status information being in the form of a coded signal, which may take the form of a series of applications of power by way of turning relay 30 on and off in a sequence to form the coded signal, which conveys the status information to an operator. Therefore, Johnsen and any of the other cited references, alone or in combination, fail to disclose, teach or suggest a controller directing status information, in the form of a coded signal, about at least one sensor to at least one heating element, the status information being directed to the at least one heating element regardless of ambient temperature, as recited in claim 1.

An advantage of Applicant's invention is that the temperature sensor does not have to have the temperature surrounding it changed in order to check on the functionality of the sensor. A further advantage is that information about multiple attributes of the system can be transferred to the heating element, thereby allowing an operator to detect the information and to decode therefrom the status of the system. The status information may be transferred in the form of a coded signal, which is directed to the heating element. Advantageously, the present invention does not have external status indicators on the control unit to give information about the temperature, presence of moisture or status of the controller, thereby reducing cost of the system. This is achieved by producing and sending status information in the form of a coded signal, to a heating element so that it can be detected by an operator during the initiation of power to the

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controller or as a result of a manual initiation of the sequence by pressing a button on the controller. This allows the operator to simply detect the information by simply clamping a amp meter around heater wire to detect the coded signal. For the foregoing reasons, Applicant submits that claim 1, and claims 2-4, 8 and 9 depending therefrom are now in condition for allowance, which is hereby respectfully requested.

In further contrast claim 11, as amended, recites in part:

a controller...directing status information of the control assembly, in the form of a coded signal, to said heater circuit regardless of ambient temperature.

(Emphasis added). Applicant submits that such an invention is neither taught, disclosed nor suggested by Johnsen or any of the other cited references, alone or in combination, and includes distinct advantages thereover.

Johnsen discloses a device for melting snow or ice the method including measuring the surface temperature of the roof and controlling the power to a heating table based upon the temperature. In contrast, Applicant's invention sends information about the controller or information about sensors connected thereto, in the form of status information, to a heating element. The status information reports information about the condition of the sensor, which allows an operator to determine its functional status. In Johnsen the temperature sensor detects a predetermined temperature, which is utilized to turn on or off the heating element. In Johnsen the temperature sensed is only conveyed if the temperature sensor crosses the chosen value and causes a reaction by the control unit. Johnsen does not send information to the heating element about the temperature sensor at any other time. In contrast Applicant's invention reports the status of the sensor by sending information to the heating element. For example, if the temperature is 70° the controller sends that information, in the form of a coded pulse stream, to the heater element to thereby allow a determination of the accuracy of the sensor. In Johnsen the

temperature of the sensor itself must be altered in order to alter the power being supplied to the heating cable. The Examiner has utilized standard paragraph 7.37.09 of MPEP 707.07(f) to indicate that the claimed invention "must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." The focus of the Examiner's argument is that the limitation, which states "said status information being directed to at least one said heater element regardless of ambient temperature." is an intended use and not a limitation of the device. In relying upon this argument the Examiner has referred to *In re Casey*, 152 USPQ 235 and *in re Otto*, 136 USPQ 458. However, in *Casey* the issue was how tape was to be utilized in a tape dispensing machine and the tape was not a claimed limitation. Further, in *Otto* the manufactured item for a hair curler indicated how the hair would be placed upon the curler, the hair not being a claimed limitation of the invention. This is in contrast to Applicant's invention in which the device performs a claimed function and does not indicate that it is merely capable of doing the claimed function. As such, the Examiner should give patentability weight to the limitation, which is a necessary element of the claimed invention. Further, Applicant has amended claim 1 to include a definition of the status information being in the form of a coded signal, which may take the form of a series of applications of power by way of turning relay 30 on and off in a sequence to form the coded signal, which conveys the status information to an operator. Therefore, Johnsen and any of the other cited references, alone or in combination, fail to disclose, teach or suggest a controller directing status information in the form of a coded signal of the control assembly to the heater circuit regardless of ambient temperature, as recited in claim 11.

An advantage of Applicant's invention is that the temperature sensor does not have to have the temperature surrounding it changed in order to check on the functionality of the sensor. A further advantage is that information about multiple attributes of the system can be transferred

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to the heating element, thereby allowing an operator to detect the information and to decode therefrom the status of the system. The status information may be transferred in the form of a coded signal, which is directed to the heating element. Advantageously, the present invention does not have external status indicators on the control unit to give information about the temperature, presence of moisture or status of the controller, thereby reducing cost of the system. This is achieved by producing and sending status information in the form of a coded signal, to a heating element so that it can be detected by an operator during the initiation of power to the controller or as a result of a manual initiation of the sequence by pressing a button on the controller. This allows the operator to simply detect the information by simply clamping a amp meter around heater wire to detect the coded signal. For the foregoing reasons, Applicant submits that claim 11, and claim 12 depending therefrom are now in condition for allowance, which is hereby respectfully requested.

In still further contrast claim 16, as amended, recites in part:

sending data in the form of a coded signal on an electrical power conductor to a heater element based on said information regardless of ambient temperature.

(Emphasis added). Applicant submits that such an invention is neither taught, disclosed nor suggested by Johnsen or any of the other cited references, alone or in combination, and includes distinct advantages thereover.

Johnsen discloses a device for melting snow or ice the method including measuring the surface temperature of the roof and controlling the power to a heating table based upon the temperature. In contrast, Applicant's invention sends information about the controller or information about sensors connected thereto, in the form of status information, to a heating element. The status information reports information about the condition of the sensor, which allows an operator to determine its functional status. In Johnsen the temperature sensor detects a

predetermined temperature, which is utilized to turn on or off the heating element. In Johnsen the temperature sensed is only conveyed if the temperature sensor crosses the chosen value and causes a reaction by the control unit. Johnsen does not send information to the heating element about the temperature sensor at any other time. In contrast Applicant's invention reports the status of the sensor by sending information to the heating element. For example, if the temperature is 70° the controller sends that information, in the form of a coded pulse stream, to the heater element to thereby allow a determination of the accuracy of the sensor. In Johnsen the temperature of the sensor itself must be altered in order to alter the power being supplied to the heating cable. The Examiner has utilized standard paragraph 7.37.09 of MPEP 707.07(f) to indicate that the claimed invention "must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." The focus of the Examiner's argument is that the limitation, which states "said status information being directed to at least one said heater element regardless of ambient temperature." is an intended use and not a limitation of the device. In relying upon this argument the Examiner has referred to *In re Casey*, 152 USPQ 235 and *in re Otto*, 136 USPQ 458. However, in *Casey* the issue was how tape was to be utilized in a tape dispensing machine and the tape was not a claimed limitation. Further, in *Otto* the manufactured item for a hair curler indicated how the hair would be placed upon the curler, the hair not being a claimed limitation of the invention. This is in contrast to Applicant's invention in which the device performs a claimed function and does not indicate that it is merely capable of doing the claimed function. As such, the Examiner should give patentability weight to the limitation, which is a necessary element of the claimed invention. Further, Applicant has amended claim 1 to include a definition of the status information being in the form of a coded signal, which may take the form of a series of applications of power by way of turning relay 30 on and off in a sequence to form the coded signal, which conveys the status

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information to an operator. Therefore, Johnsen and any of the other cited references, alone or in combination, fail to disclose, teach or suggest the step of sending data in the form of a coded signal on an electrical power conductor to a heater element based on the information regardless of ambient temperature, as recited in claim 16.

An advantage of Applicant's invention is that the temperature sensor does not have to have the temperature surrounding it changed in order to check on the functionality of the sensor. A further advantage is that information about multiple attributes of the system can be transferred to the heating element, thereby allowing an operator to detect the information and to decode therefrom the status of the system. The status information may be transferred in the form of a coded signal, which is directed to the heating element. Advantageously, the present invention does not have external status indicators on the control unit to give information about the temperature, presence of moisture or status of the controller, thereby reducing cost of the system. This is achieved by producing and sending status information in the form of a coded signal, to a heating element so that it can be detected by an operator during the initiation of power to the controller or as a result of a manual initiation of the sequence by pressing a button on the controller. This allows the operator to simply detect the information by simply clamping a amp meter around heater wire to detect the coded signal. For the foregoing reasons, Applicant submits that claim 16, and claim 18 depending therefrom are now in condition for allowance, which is hereby respectfully requested.

Claims 5, 6, 13 and 14 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Johnsen in view of U.S. Patent No. 6,428,671 (Sogo, et al.). However, claims 5 and 6 depend from claim 1 and claims 13 and 14 depend from claim 11, and claims 1 and 11 are in condition for the reasons given above. Accordingly, Applicant submits that claims 5, 6, 13 and 14 are in condition for allowance, which is hereby respectfully requested.

Claims 17, 19, 21 and 22 have been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Johnsen in view of an Official Notice. However claims 17, 19, 21 and 22 depend from claim 16, and claim 16 is in condition for allowance for the reasons given above. Accordingly, Applicant submits that claims 17, 19, 21 and 22 are in condition for allowance, which is hereby respectfully requested.

The Examiner is hereby respectfully requested to provide evidence that one skilled in the art would find it obvious to modify a heating system to pulse electrical power to a power conductor and thence to a heating element in an on and off pattern depending upon the information and detecting the pattern in a conductor by an amp meter to thereby receive the information.

At page 3 of the Office Action, the Examiner has discussed claims 7, 9 and 23 without indicating that they are rejected. Nonetheless, claims 7 and 9 depend from claim 1, and claim 23 depends from claim 16, and claims 1 and 16 are in condition for allowance for the reasons given above. Accordingly, Applicant submits that claims 7, 9 and 23 are in condition for allowance, which is hereby respectfully requested.

At page 3 of the Office Action, the Examiner has discussed claim 15 without indicating that it has been rejected. Nonetheless, claim 15 depends from claim 11, and claim 11 is in condition for allowance for the reasons given above. Accordingly, Applicant submits that claim 15 is in condition for allowance, which is hereby respectfully requested.

Claim 20 has been rejected under 35 U.S.C. § 103 (a) as being unpatentable over Johnsen in view of Official Notice discussed above, and in further view of U.S. Patent No. 3,909,601 (Yamawaki, et al.). However, claim 20 depends from claim 16, and claim 16 is in condition for allowance for the reasons given above. Accordingly, Applicant submits that claim 20 is in condition for allowance, which is hereby respectfully requested. The Examiner has indicated that

it would be obvious to modify the system of Johnson in view of official notice to include a varying at least one of time, duration and frequency of the pattern of Yamawaki et al. for the purpose of providing a more precise controller. In so doing the Examiner has failed to explain how varying of the time duration of the frequency of information provides for a more precise controller, since the information of Applicant's invention is sent to a heating element and does not modify the controller to make it more precise. As such, Applicant requests that the Examiner explain the connection between the preciseness of a controller and the sending of information to a heating element.

For the foregoing reasons, Applicant submit that no combination of the cited references teaches, discloses or suggests the subject matter of the amended claims. The pending claims are therefore in condition for allowance, and Applicant respectfully requests withdrawal of all rejections and allowance of the claims.

In the event Applicant has overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicant hereby conditionally petitions therefor and authorizes that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

PATENT
Reply under 37 CFR 1.116
Group 3749

Should any question concerning any of the foregoing arise, the Examiner is invited to
telephone the undersigned at (260) 897-3400.

Respectfully submitted,



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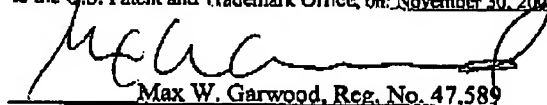
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Date